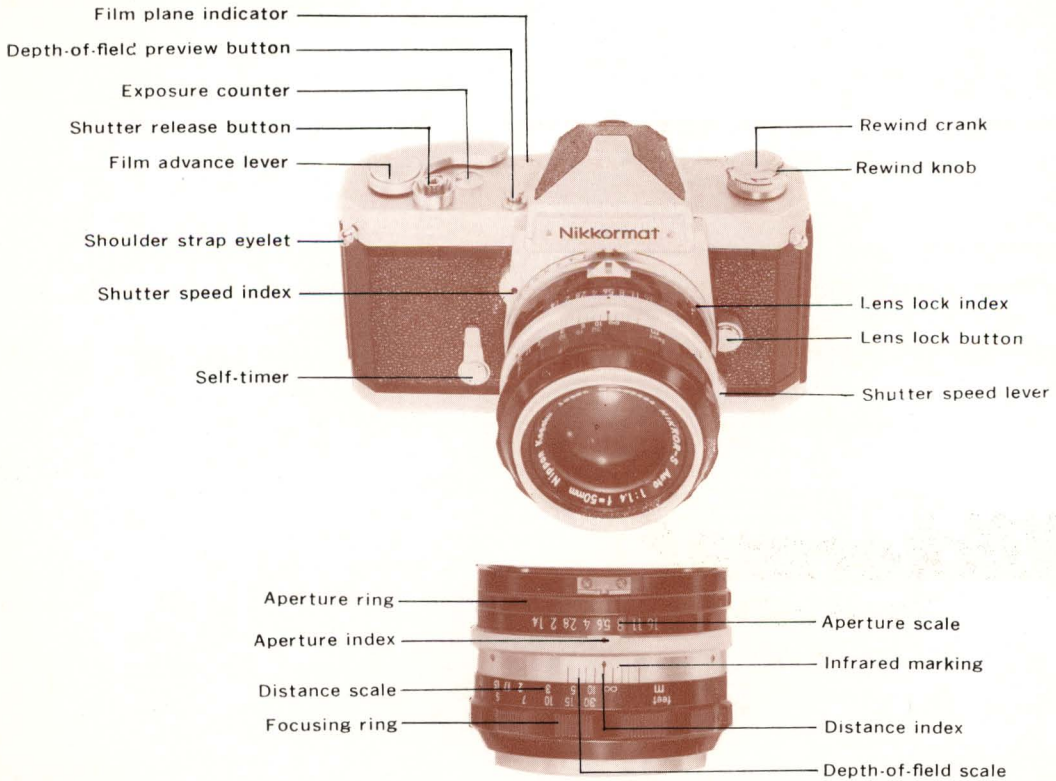
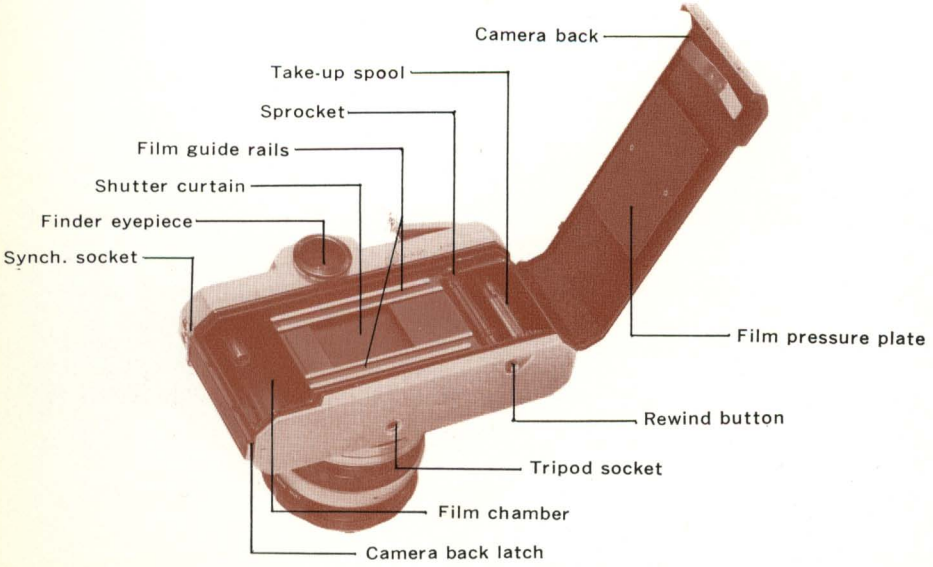
FS

Nikkormat

INSTRUCTIONS

NOMENCLATURE





The Nikkormat FS is supplied with Nikkor Auto 50 mm F/1.4 or F/2 lens as a standard equipment. These lenses have automatic diaphragms.

NIKKORMAT MODEL FS

Film to be used: Standard 35 mm film in daylight cartridges available in 36 and 20 exposure loads. Each frame measures 24×36 mm.

Viewfinder: Eye-level type using roof prism. Eyepiece accepts accessory angle-finder as well as eye-correction lenses.

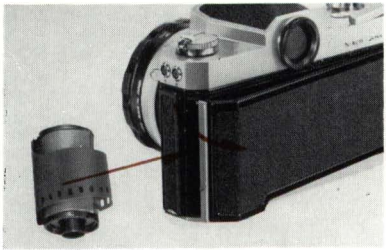
Finder screen: Circular micro-prism spot in center (dia.=4 mm) surrounded by a mat ring to 12 mm dia. Remaining area is Fresnel lens. Screen field covers 92% of the actual picture field.

Mirror: Automatic return following exposure.

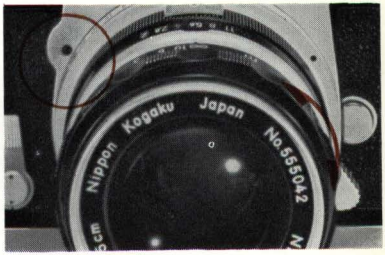
Shutter: Double focal plane type. The shutter curtains, made of metal, run vertically. Shutter speeds, set at B, 1~1/1000 sec., are graduated equidistant.
A one-stroke lever wind of 155° advances the film and winds the shutter.

Depth of field preview button:	While being pressed, closes down the diaphragm to the pre-selected aperture.
Flash synchronization:	M-contact and X-contact provided with automatic time lag adjustment. Synchronizes to X-contact and speed-light flash at the shutter speed of 1/125 sec. or slower.
Self-timer:	Built-in. Starts by depressing the shutter release button.
Exposure counter:	Automatically returns to S (Start) with the camera back opened.
Dimensions:	146 mm (width) × 95 mm (height) × 33 mm (thickness) × 73 mm (shoulder height)
Weight:	715 g

PICTURE TAKING PROCEDURES

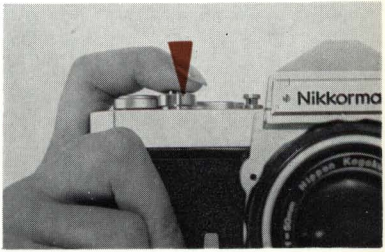


1 Load the camera with film.

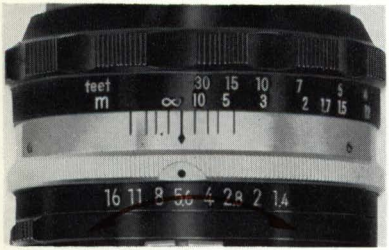


2 Set the shutter speed.

5 Focus and compose the picture.

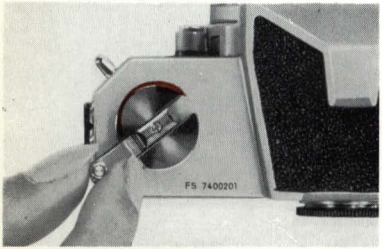


6 Press the shutter release button. One picture frame is exposed.

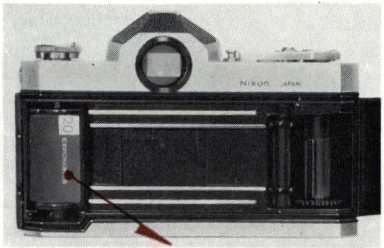


3 Set the lens aperture to the proper F-number.

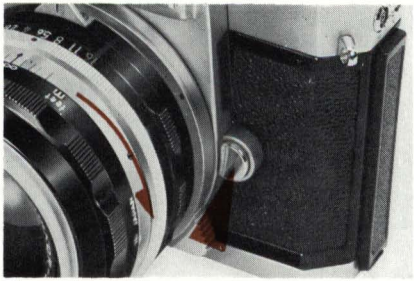
4 Wind the film advance lever.



7 When the whole film is exposed, rewind the film back into the original cartridge.

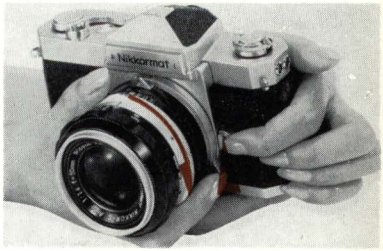


8 After complete rewinding, the film can be removed.



To Remove the Lens

Holding the lens by the milled ring, press the lock button and turn the lens barrel clockwise until it stops.



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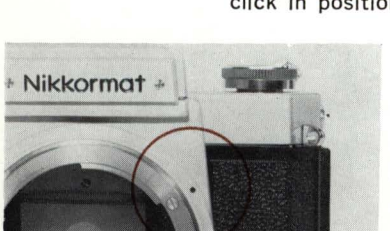
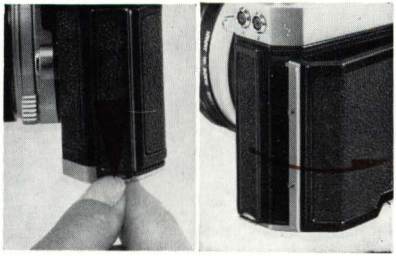
To Mount the Lens

After inserting the lens into the camera, with the distance index on the lens lined up to the black dot on the camera front, turn the lens counterclockwise, and the lens will click in position.

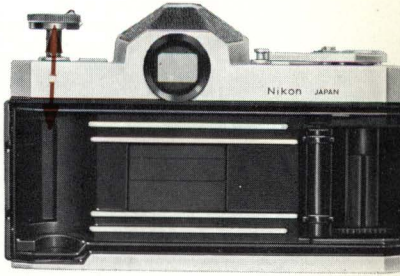


When a lens is removed, the opening in the camera body should not be exposed to direct sunlight, especially with the camera loaded. Protect the inside of the camera by using a body cap, whenever the camera is carried or kept with the lens removed.
When the lens is carried separately from the camera, protect it from damage and dust by using a case as well as front and rear caps.

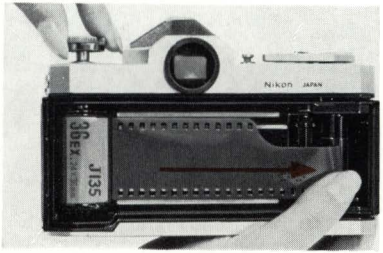
LOADING THE CAMERA



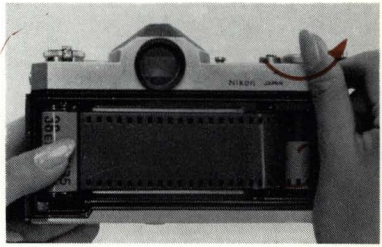
1 Pull down the latch, to open the camera back.



2 Pull up tne rewind knob.

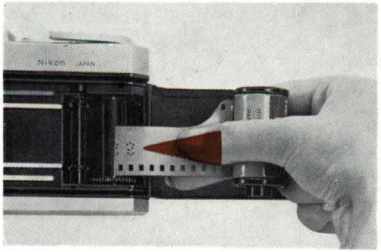


5 Place the cartridge into the chamber below the rewind knob. Push back the knob to lock the cartridge in place.



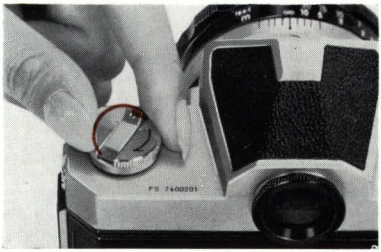
6 Gently push the film advance lever forward, to catch the film securely.

3 Rotate the take-up spool so that the slit in the spool faces upward.



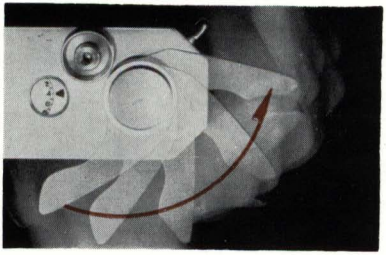
4 Insert the trimmed end of the film into the slit.

Holding the film with the perforation engaged in the teeth of the transport sprocket, close the camera which, if properly closed, should click shut.



7 Turn the rewind knob gently in the direction of the arrow on it, to take up any film slack in the cartridge.

FILM ADVANCE LEVER



The film advance lever, which simultaneously winds the shutter, should be pushed forward until it stops. Then, let it swing back to the ready advance position. Press the shutter release button, and the shutter will be released.

After the camera has been loaded and closed, operate the shutter twice for two blank shots to dispose of the film exposed during loading. As this is being done, note that the rewind knob rotates in the opposite direction to the arrow on the knob. This indicates that the film has been correctly loaded and is being advanced properly.

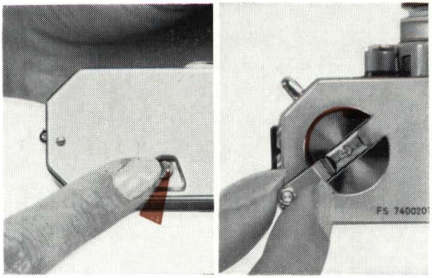
Exposure Counter

The exposure counter now registers "0". With the film advance lever operated again, the counter will register "1" and the camera is ready for the first shot. It then continues to register the number of pictures taken, up to a maximum of either 36 or 20 exposures, depending on the film length.

Camera back closed | First blank shot | Second blank shot | For first shot | For second shot

When the end of the film is reached, a sudden difficulty will be felt in the winding of the film advance lever. At this position no further advance should be attempted. Bring back the lever to its original position and proceed to rewinding of the film.

First, push in the rewind button located on the camera bottom.
Then, lift up the rewind crank on the rewind knob.
Turn the crank in the direction of the arrow.
When the whole film is rewound and detached from the take-up spool, a release in the film tension will be felt. Open the camera in subdued light.



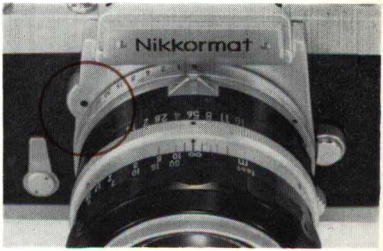
Pull up the rewind knob. Remove the film cartridge from the camera. The rewind button on the camera bottom will snap back into position, when the film advance lever is next operated.

For 20th shot For 36th shot

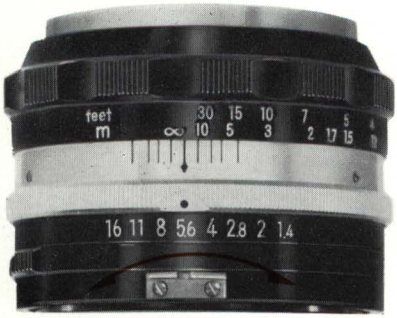
The exposure counter automatically returns to "S" when the camera back is opened.

SHUTTER SPEED

The shutter speed controls the amount of light admitted through the lens and can freeze the image of moving subjects, too.
Turn the lever found on the right side, until the desired shutter speed number on the left side comes opposite the black index.



The numbers from 1 to 1000 represent the denominations of the shutter speeds in sec. Thus, for example, the figure 125 represents 1/125 sec.
The speeds are so arranged that each subsequent speed is twice as high as the preceding.
The shutter speed lever clicks at each marked number. The shutter does not give an intermediate exposure time, except from 1/250 to 1/1000 sec.
When set at B, the shutter will remain open as long as the shutter release button is held depressed.



The lens aperture controls the amount of light and at the same time the depth of field (see P. 18).
The F-numbers—the focal length of the lens divided by the diameter of the effective aperture of lens—for example, 1.4, 2, 2.8, 4, 5.6, 8, 11, 16, 22 . . . . are engraved on the aperture ring of each lens, and can be set by turning the ring to the index dot. Each number will permit the passage of half the light of the number preceding it. Thus, F/8 will allow half the light allowed by F/5.6.

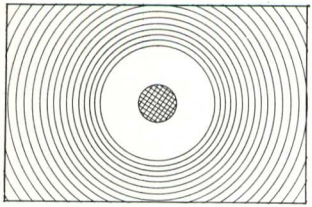
COMBINATION OF SHUTTER SPEED AND APERTURE

The amount of light admitted through the lens to fall on the film is adjusted by the exposure which is determined by the combination of the shutter speed and aperture of the lens. Therefore, a number of different combinations are possible for the same exposure; for example, 1/250 sec. with F/1.4 will give the same exposure as 1/60 sec. with F/2.8 or 1/8 sec. with F/8.

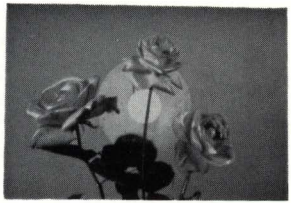
CAMERA HOLDING

For crisp photographs it is most important that the camera be held firmly at the moment of releasing the shutter, since any jarring or vibration will result in a blurred picture.
Every effort should be made to familiarize oneself with holding the camera and operating its controls.

In holding the camera, the eye should look through the center of the viewfinder, and the camera itself should be held firmly against the face.

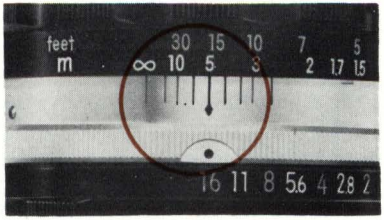


Since the taking lens is at the same time the viewing lens in this single-lens reflex camera, the viewfinder shows the exact picture that will appear on the film. There can be no parallax problem, no matter how close to the subject the picture is taken.



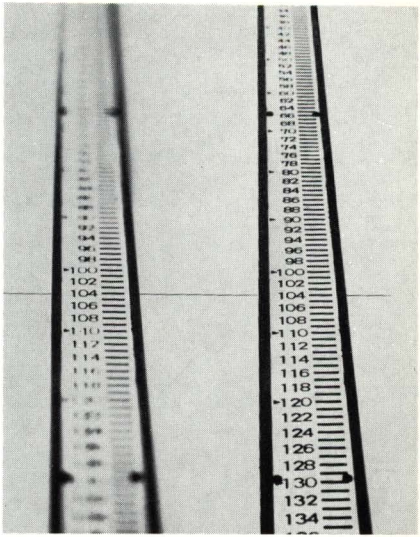
The subject to be photographed is brought into sharp focus on the viewing screen by turning the focusing ring of the lens. When the image is brought into focus, the image within the micro-prism in the center of the viewing field appears crisp and clear.
The distance between the camera and the subject can be obtained, after focusing, by reading the number engraved on the focusing ring, opposite the indicator line located in the middle of the depth-of-field scale.

DEPTH OF FIELD



When a subject point is brought into focus by a lens at a specific distance from that point, the actual point on which the focus is made is considered to be the most sharply defined in the picture, and the sharpness of other points which lie in front of and behind this point of focus gradually diminish. Within certain limits, however, these may appear reasonably and acceptably sharp. The range within which points in front of and behind the point of focus, appear acceptably sharp, is called the depth of field.

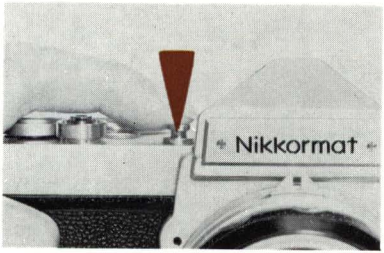
Depth of field increases as the aperture of the lens is made smaller. Shortening the lens focal length or increasing the distance between lens and subject also increases depth of field. These three factors can operate independently or in conjunction. One factor may act to partially cancel the effect by the other.



DEPTH-OF-FIELD PREVIEW BUTTON

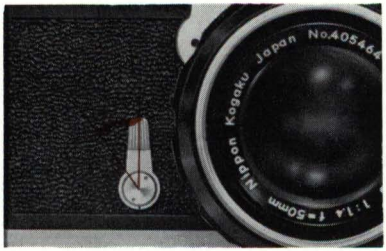
The Nikkor lens has a color-coded depth of field scale engraved on the lens barrel just behind the focusing ring. This color code permits easy reading of the depth of field scale for any selected aperture. Each set of colored lines, located one on either side of the middle line represents a different F-number. The color of the line matches that of the F-number engraved on the aperture ring.

For example, when using the 50 mm F/1.4 lens, with the distance scale setting at 15 ft and with an F/16 opening (F/16 is shown in blue), the depth of field indicated by the blue-colored lines on either side of the black index will be between 8 ft and ∞.
This means that a picture taken at F/16, with the lens focused at 15 ft will show a range of acceptable sharpness between 8 ft and ∞. The sharpest point will be at 15 ft.



Press the button located on the camera top at the right side of the viewfinder (viewed from behind the camera), and the aperture diaphragm will be closed down to the preselected aperture. This permits viewing the depth-of-field at "taking" aperture, or selecting the "taking" aperture on the basis of depth-of-field. Release the button and the diaphragm will instantly reopen.
The depth-of-field is read on the color-coded depth-of-field scale engraved on the barrel of each Nikkor lens.

SELF-TIMER



The self-timer is a device which delays the action of the shutter after the shutter release button is depressed. It is necessary if the photographer wishes to be in the picture.

To set the self-timer, move the lever down (35°) until it stops.

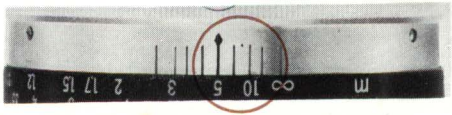
To start the timer, depress the shutter release button. The shutter will automatically be released after about 8 seconds.

The self-timer can be set before or after winding the shutter.

It should not be used at the B setting. When the timer once starts, it cannot be stopped.

The use of a tripod or similar support is necessary when a shutter speed of 1/30 or slower is used.

A cable release screwed into the shutter release button will help to avoid jarring the camera at the moment of exposure.



Film Plane Indicator

The marking ⊖ found on the camera top indicates the position of the film plane. It is used in close-up photography for measuring an exact distance from camera to subject.

When taking infra-red pictures, an extra focusing adjustment must be made. The subject should be focused as for normal photography; the distance between the camera and the subject should then be noted from the focusing ring and the ring rotated so that this distance is brought to the red dot engraved on the depth-of-field scale.

FLASH SYNCHRONIZATION

The use of a flash is necessary for taking pictures in low light levels.

To attach a flash unit onto the camera, first unscrew the finder eyepiece glass and insert the L-shaped accessory shoe. Replace the eyepiece glass and tighten.

A regular flash unit (e.g. Nikon BC-6) or electronic flash can be used provided the unit is equipped with a standard PC flash cord tip.

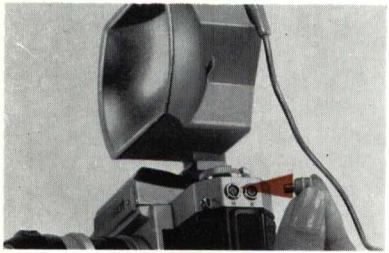
The red M socket on the side of the camera should be used with all M or FP class flash bulbs. The black X socket is a zero delay socket and is used for electronic flash and F class bulbs.
Be sure you plug into the correct socket.

The shutter speed range which will permit positive synchronization with each class of flash bulbs or electronic flash is shown below. Shutter speeds for positive synchronization with an

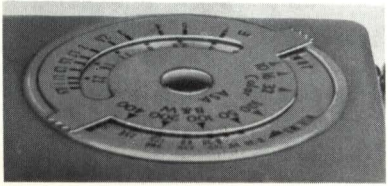
Camera contact socket	Bulb type	Shutter Speeds											
		1000	500	250	125	60	30	15	8	4	2	1	B
M	M	○	○	○	○	○	○	○	○	○	○	○	○
	FP	○	○	○	○	○	○	○	○	○	○	○	○
X	F	–	–	–	–	○	○	○	○	○	○	○	○
	Electronic flash	–	–	–	○	○	○	○	○	○	○	○	○

○ Synchronized – Cannot be used

electronic flash are from 1/125 sec. to 1 sec. (engraved in black on the shutter speed scale of the camera).



To determine the correct exposure when using flash, refer to the Guide Number (=F-number × subject distance) which will be furnished with the instructions accompanying the flash unit and/or the particular flash bulbs.



Compensated by flash

Even in bright daylight, the use of a flash is sometimes quite effective as an auxiliary light source, to compensate for a great difference in brightness between the subject and the background.

LENS HOOD

The use of a lens hood is recommended at all times, especially when the lens is turned toward the light, or where there is stray light present.
Two types of lens hood are available for Nikkor lenses: snap-on and screw-in.

Snap-on Lens Hood

Snap-on hoods combine "slip-on" speed and "screw-in" security. By depressing the buttons (one located on either side of the hood), the hood is attached or detached. The hood will also fit directly over a screw-in filter, permitting use of both units with the lens at one time. The hood can also be "stored" in reverse position on the lens.

Screw-in Lens Hood

Screw-in hoods can be used with screw-in filters or Series filters. However, screw-in filters are recommended, because the hood in combination with Series filters may not always give satisfactory results with wideangle lenses, owing to possible vignetting.

Nikon filters are supplied either in screw-in or Series type mounts. Screw-in filters are used with lenses from 28 mm through 135 mm; 200 mm and 300 mm. Series filters are used with long focus and zoom lenses, which are furnished with screw-in lens hoods. When the hood is not used, the filter can be attached to these lenses by means of an adapter ring and insert ring.

Filters reduce the amount of light transmitted; therefore an increase in exposure is necessary when using them. This increase is expressed as a factor. Thus, a filter with a factor 2 means that double the normal exposure is required; e.g. use 1/30 instead of 1/60 sec. or change the aperture from, say, F/8 to F/5.6 Correct filter factors also depend upon color of lighting and color sensitivity of film used.

	Type		Designation	Exposure factor		Equivalent to Wratten
				Daylight	Tungsten light	
Black-and-white film	Yellow	Light	Y43, Y44, Y45	1.5	1.5	K1
		Medium	Y47, Y48, Y49	1.7	1.2	K2
		Deep	Y51, Y52, Y53	2	1.5	K3
	Orange		O55, O56, O57	3	2.5	23A
	Red		R59, R60, R61	6	—	A
	Green	Light	X0	2	1.7	X1
		Deep	X1	—	2	X2
Black-and-white and color film	Ultra-violet		L38, L39, L40	1		2A, 2B, 2C
	Polarizing		Polar	2~4		Polar
	Neutral Density		ND 4×	4		ND
			ND 8×	8		
			ND 10×	10		
			ND400×	400		
Color film	Skylight		L1A	1		1A
	Amber	Light	A2	1.2		81A
		Deep	A12	2		85
	Blue	Light	B2	1.2		82A
		Medium	B8	1.6		82C
		Deep	B12	2.2		82B

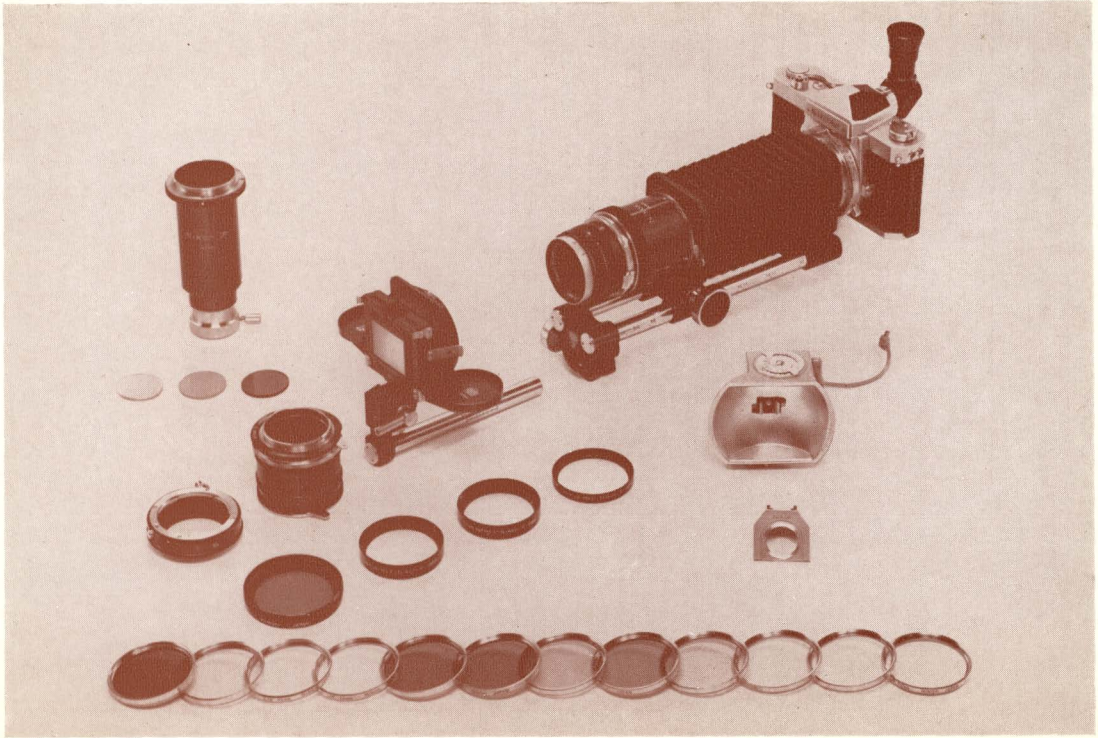
INTERCHANGEABLE NIKKOR LENSES FOR NIKKORMAT FS

Group	Type	Aperture diaphragm	Closest focus distance	Hood	Filter	Weight	Remarks
Wideangle	Nikkor Auto 28 mm F 3.5	Automatic	0.6 m and 2 ft	Screw-in	52 mm	215 g	
Wideangle	Nikkor Auto 35 mm F 2.8	Automatic	0.3 m and 1 ft	Screw-in	52 mm	200 g	
Special purpose	PC Nikkor 35 mm F 3.5	Preset	0.3 m and 1 ft	Screw-in	52 mm	290 g	Max. shift: 11 mm Click-stop at every 30° revolution.
Wideangle	Nikkor Auto 35 mm F 2	Automatic	0.3 m and 1 ft	Screw-in	52 mm	285 g	
Normal	Nikkor Auto 50 mm F 2	Automatic	0.6 m and 2 ft	Snap-on	52 mm	205 g	
Normal	Nikkor Auto 50 mm F 1.4	Automatic	0.6 m and 2 ft	Snap-on	52 mm	325 g	
Normal	Nikkor Auto 55 mm F 1.2	Automatic	0.6 m and 2 ft	Snap-on	52 mm	420 g	
Special purpose	Micro-Nikkor Auto 55 mm F 3.5	Automatic	0.241 m or 9 1/2 in	Screw-in	52 mm	235 g	With M-Ring up to 1/1 repro. ratio.
Telephoto	Nikkor Auto 85 mm F 1.8	Automatic	1 m and 3.5 ft	Screw-in	52 mm	420 g	

Group	Type	Aperture diaphragm	Closest focus distance	Hood	Filter	Weight	Remarks
Telephoto	Nikkor 105 mm F 4	Preset	0.8 m or 2.75 ft	Snap-on	34.5 mm	230 g	
Telephoto	Nikkor Auto 105 mm F 2.5	Automatic	1.2 m and 4 ft	Snap-on	52 mm	375 g	
Telephoto	Nikkor Auto 135 mm F 3.5	Automatic	1.5 m and 5 ft	Snap-on	52 mm	375 g	
Telephoto	Nikkor Auto 135 mm F 2.8	Automatic	1.5 m and 5 ft	Built-in	52 mm	620 g	
Telephoto	Nikkor Auto 200 mm F 4	Automatic	3 m and 10 ft	Built-in	52 mm	600 g	
Special purpose	Medical-Nikkor 200 mm F 5.6	Automatic	—	—	—	670 g	With built-in speed light. Repro. ratios 1/15~3 x with attachment lenses.
Telephoto	Nikkor Auto 300 mm F 4.5	Automatic	4 m and 13 ft	Built-in	72 mm	1 kg	
Ultra Telephoto	Nikkor Auto 400 mm F 4.5	Automatic	5 m or 16 ft	Built-in	122 mm	1.9 kg	Used with Focusing Unit.
Ultra Telephoto	Reflex-Nikkor 500 mm F 5	With ND filters	15 m and 50 ft	Screw-in	39 mm	1.6 kg	Vertical format change-over provided.

Group	Type	Aperture diaphragm	Closest focus distance	Hood	Filter	Weight	Remarks
Ultra Telephoto	Nikkor Auto 600 mm F 5.6	Automatic	11 m or 35 ft	Built-in	122 mm	2.4 kg	Used with Focusing Unit.
Ultra Telephoto	Nikkor Auto 800 mm F 8	Automatic	18 m or 60 ft	Built-in	122 mm	2.3 kg	Used with Focusing Unit.
Ultra Telephoto	Reflex Nikkor 1000 mm F 11	–	8 m and 25 ft	Slip-on	34.5 mm Built-in	2.5 kg	Vertical format change-over provided.
Ultra Telephoto	Reflex Nikkor 1000 mm F 6.3	With ND-filters	30 m and 100 ft	Slip-on	52 mm Built-in	10 kg	
Ultra Telephoto	Nikkor 1200 mm F 11	Manual	40 m or 130 ft	Built-in	122 mm	3.1 kg	Used with Focusing Unit
Zooming	Zoom-Nikkor Auto 43~86 mm F 3.5	Automatic	1.2 m and 4 ft	Screw-in	52 mm	410 g	
Zooming	Zoom-Nikkor Auto 50~300 mm F 4.5	Automatic	2.5 m or 8.5 ft	–	95 mm	2.1 kg	Vertical format change-over provided.
Zooming	Auto-Nikkor Telephoto-Zoom 85~250 mm F 4~F 4.5	Automatic	4 m or 13 ft With attach-ment lens 2.2 m or 7.5 ft	Screw-in	Series 9	2 kg	
Zooming	Auto-Nikkor Telephoto-Zoom 200~600 mm F 9.5~F 10.5	Automatic	4 m or 13 ft With attach-ment lens 2.3 m or 7.5 ft	Screw-in	Series 9	2.8 kg	Vertical format change-over provided.

ACCESSORIES EXCLUSIVELY USED ON NIKKORMAT FS



Accessory Shoe
This adapter is necessary for mounting the BC-6 Flash Unit, etc. onto the camera.
The shoe is fastened under the outside protecting glass which once screwed out from the finder eyepiece.
Can be used in conjunction with the eyecup.

Angle Finder
The finder, permitting viewing the finder vertically from any direction, enables assuming the easiest posture in reprocopy, close-ups, photomicrography, etc.
To attach it onto the camera, it is necessary to screw out once the outside protecting glass of the finder eyepiece in the camera.

Finder Eyecup
Can be attached onto the protecting glass of the finder eyepiece. Prevention of extraneous light by the use of the eyecup not only serves to avoid the influence of the light upon the built-in exposure meter, but also ensures crispness of the finder image.

Eveready Cases
Made of genuine leather. Two types, semi-soft and hard, are available, each with a detachable front. The tripod socket at the bottom permits attaching the camera to a tripod without need of removing the case from the camera.

Eye-correction Lenses
One of these lenses, attached in place of the protecting glass of the finder eyepiece, gives the far-sighted or near-sighted a sharp image through the finder:
−5, −4, −3, −2,
0, +1, +2, +3 (Diopter)
Select the power by viewing the finder image combined with that (−1 dptr.) of the finder.

Close-up Attachment Lenses
Allow focusing as close as up to about 26 cm with 50 mm lens. No. 0, No. 1 and No. 2 are available.

Extension Ring Model E_2
Inserted between lens and camera, it elongates the lens-to-camera distance for close distance photography.

Extension Ring Set K
Consisting of 5 different rings used individually or combined for close-ups up to 1× repro. ratio.

Nikkor 135 mm F/4
Exclusively used on the Bellows for photography from infinity to 1× repro. ratio. For attaching BR1-tube is required.

Reprocopy Outfit
Consisting of bracket, post and table clamp or carrying case which serves as a base plate. Conveniently used for reprocopy and close-ups.

Bellows Focusing Attachment
Permits continuous elongation of the lens-to-camera distance for close-ups and macrophotography up to 3.5× with 50 mm lens. BR-2 ring for attaching the lens in reversed position.

Slide-copy Adapter
Attached onto the front of the Bellows, it gives great convenience in copying color slides or in making slides from negative color film.






Focusing Unit
Commonly used for connecting Nikkor 400 mm, 600 mm, 800 mm or 1200 mm on the camera. Equipped with focusing mechanism, automatic aperture diaphragm and revolving tripod socket for horizontal and vertical format.

Focusing Adapter
For using Nikkor 135 mm F/3.5 with screw-mount on the camera.

N-F Adapter Tube
For attaching Nikkor 180 mm, 250 mm, 350 mm or 500 mm with Nikon S-series camera mount to the camera.

Nikon Flash Unit BC-6
Designed compact. Automatic change-over socket for using AG. 1 or pinless miniature bulbs. Exposure calculator. 8″ flash cord connection. Accepts 15 volt battery.

El-Nikkor 50 mm F/2.8
Optically and mechanically ideal enlarging lens with screw mount. White colored F-number figures especially convenient for darkroom use.

Microscope Adapter
Connecting the camera with a standard microscope, it facilitates photomicrography.

Nikon Microflex
Fully-equipped microscope adapter, with coupled-prism-shutter housing. Ocular viewfinder for high power and ground-glass viewer for low power magnifications.

Camera Body Cap
Protects the camera inside, while the lens is being removed.

CARE AND MAINTENANCE

1. Clean the outside of the camera using first a brush and then soft cloth.
2. Dust and sand which enter while the camera is opened or the lens is detached, should be removed occasionally using of a brush or hand blower.
3. Dust, finger prints, water drops, etc. will not only affect the contrast of the image, but also, if left for a long time, will corrode the lens surface.
4. Do not wipe the lens surface too often without any need. If need arises, first remove dust using a brush and thereafter wipe it using washed-out cotton cloth or lens tissue, soaked with a bit of alcohol.
5. The camera should be stored at a place free from dust and moisture,
6. If the camera is dropped in water, bring it immediately to a service shop for repair. In case of salt water, the camera should once be immersed in fresh-water and then sent for repair.

Guarantee Card No.		Camera No.	
Purchased :			
Name of Owner : Address :			

Nikon

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